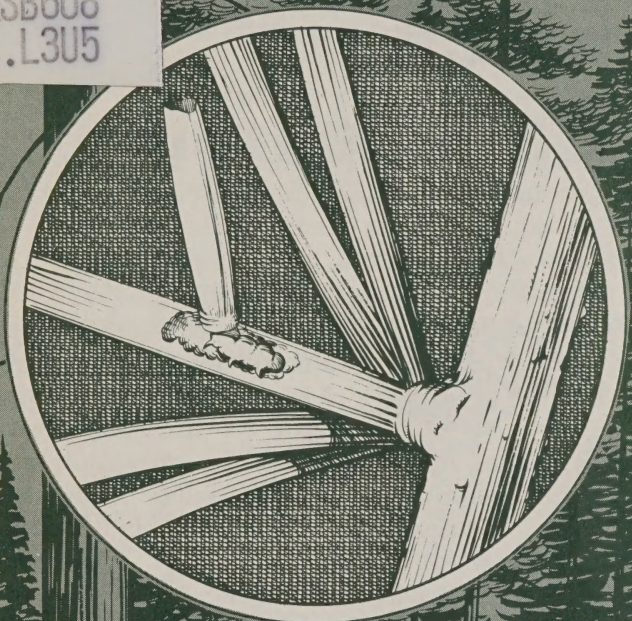


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LARCH CASEBEARER

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U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE/NORTHERN REGION
MISSOULA, MONTANA

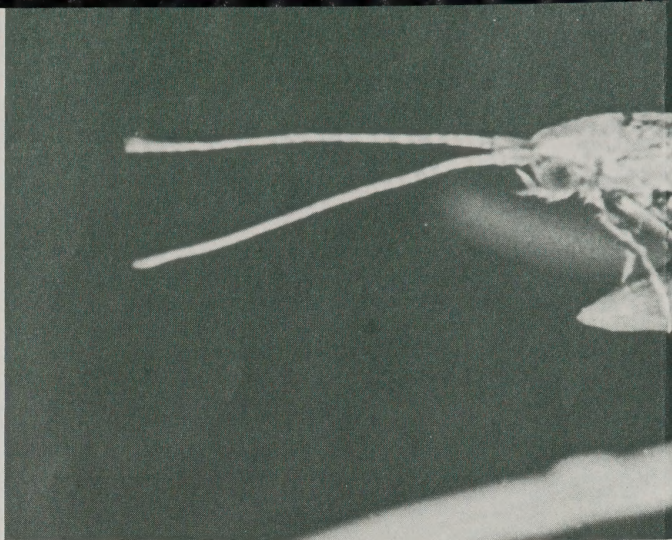
The Larch Casebearer



The larch casebearer was unknown in the Northern Region National Forests until its discovery near St. Maries, Idaho, in 1957. The infestation has since spread over 34,000 square miles in Idaho, Montana, and Washington, and is now a serious threat to western larch. The larch casebearer is native to Europe, but was noted on eastern larch in 1886. Importations of larch planting stock from Europe probably introduced this insect to the East. Before the casebearer was found in Idaho, the most westward extension was St. Paul, Minnesota. It is unknown how this insect reached the West.

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U.S. Forest Service, Northern Region.



Adult larch casebearer

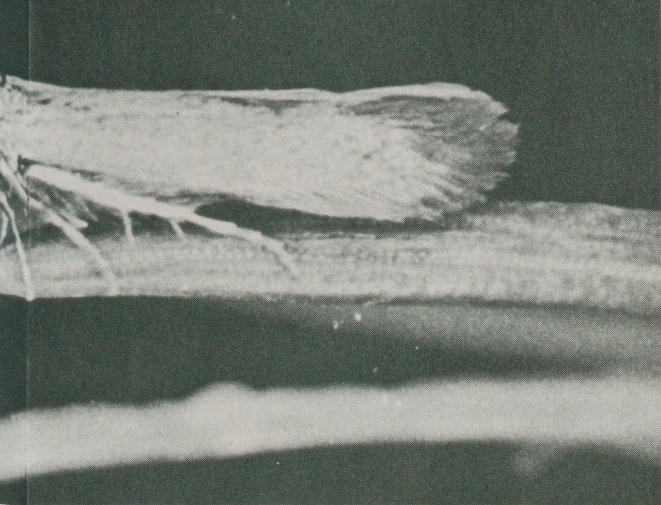
LIFE HISTORY

The adult larch casebearer is a silvery to grayish-brown moth, with a wing expanse of about three-eighths of an inch. Mature larvae are about three-sixteenths of an inch long. Larvae are seldom seen because they are enclosed within a case made from a section of a larch needle, thereby deriving the name "casebearer."

The larch casebearer completes one generation per year. Eggs are laid singly in June on larch needles. Upon hatching, the small larvae chew through the eggshells and into the larch needles to feed as miners within the needles during July and August.

Overwintering larch casebearer in



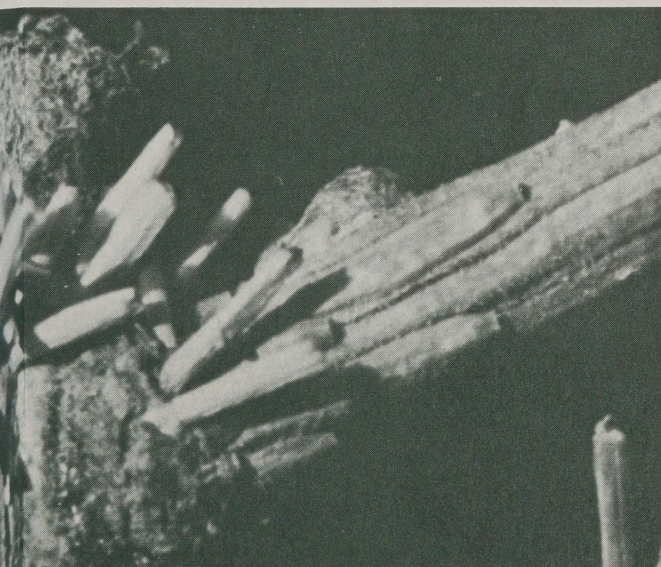


larch casebearer.

The larvae emerge from the needles in September to construct "cases" from excavated larch needles lined with silk. Larvae then feed as miners by extending the head and body into the needles.

As fall approaches, the casebearer larvae migrate to the larch spurs and fasten their cases with silk to the twigs for winter hibernation. When populations are high, there are often many casebearers per spur. After the larch buds burst in April or early May, the larvae resume feeding. As larvae reach maturity they attach themselves to the needles and twigs to enter the pupal stage. Moths emerge in June from cigar-shaped pupal cases to lay eggs.

in "cases" attached to larch buds.



DAMAGE

The greatest damage to the tree occurs during the spring feeding period, as casebearer larvae reach maturity. During epidemics, larch foliage appears bleached in early spring, but turns brown as it dries. Trees often look as if they have been scorched by fire under these conditions.

Recent surveys have established that persistent defoliation by the casebearer is responsible for considerable growth loss and tree deterioration. First symptom of vigor loss is the appearance of short needles on branch tips. More pronounced signs of larch casebearer damage are dead branches at midcrown and foliage sprouts on the bole. Some tree mortality has occurred.

CONTROL

Following the casebearer discovery in Idaho in 1957, efforts were first directed at biological control rather than insecticidal. A



Western larch damaged by larch casebearer defoliation.



Female *Agathis pumila* parasitizing newly hatched casebearer larvae. The wasp is placing a single egg in the casebearer larva within the larch needle.

parasitic wasp, *Agathis pumila*, which has contributed to the control of the casebearer in the East, was selected and brought to Idaho in 1960. The adult parasite is about the size of a mosquito.

During July the female parasite searches for newly hatched casebearer and deposits a single egg in each larva. Each female has the potential to parasitize about 75 casebearer larvae. The parasite develops slowly within the body cavity and emerges from the consumed host larva as an adult the following July. One generation of parasites is produced each year.

Importations of the parasite were continued in 1964 and 1965 to establish colonies. Parasite colonies are now established in 38 scattered locations in Idaho, Montana, and Washington. The parasite has increased in numbers near the centers of some older release areas, but has only extended its range to about one-half mile from the original release site. Until the parasite expands its range to cover large areas, no widespread control can be expected.

Insecticide control measures have been investigated, and Malathion, an organic phosphate chemical, proved to be effective against the casebearer. Although chemical control is not presently being used, it may be necessary in high-use areas where damage cannot be tolerated. Integrated control — using both chemical and biological techniques — may be used in the future.

